

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P438811

Luminaire Tested: **ISW-SA1F-722-U-SL4**

Issue Date: 12/10/2020

Test Information

Test Method: LM-79-08
Report Number: P438811
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2011-074-18)
Test Lab: INNOVATION CENTER
Issue Date: 12/10/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: ISW-SA1F-722-U-SL4
Description: IMPACT ELITE LED WEDGE LUMINAIRE
(1) 70 CRI, 2200K, 1200mA LIGHTSQUARE WITH 16 LEDS AND TYPE IV SPILL
LIGHT ELIMINATOR OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5538 lumens
Efficiency: N/A
Efficacy: 83.9 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B1 - U0 - G2

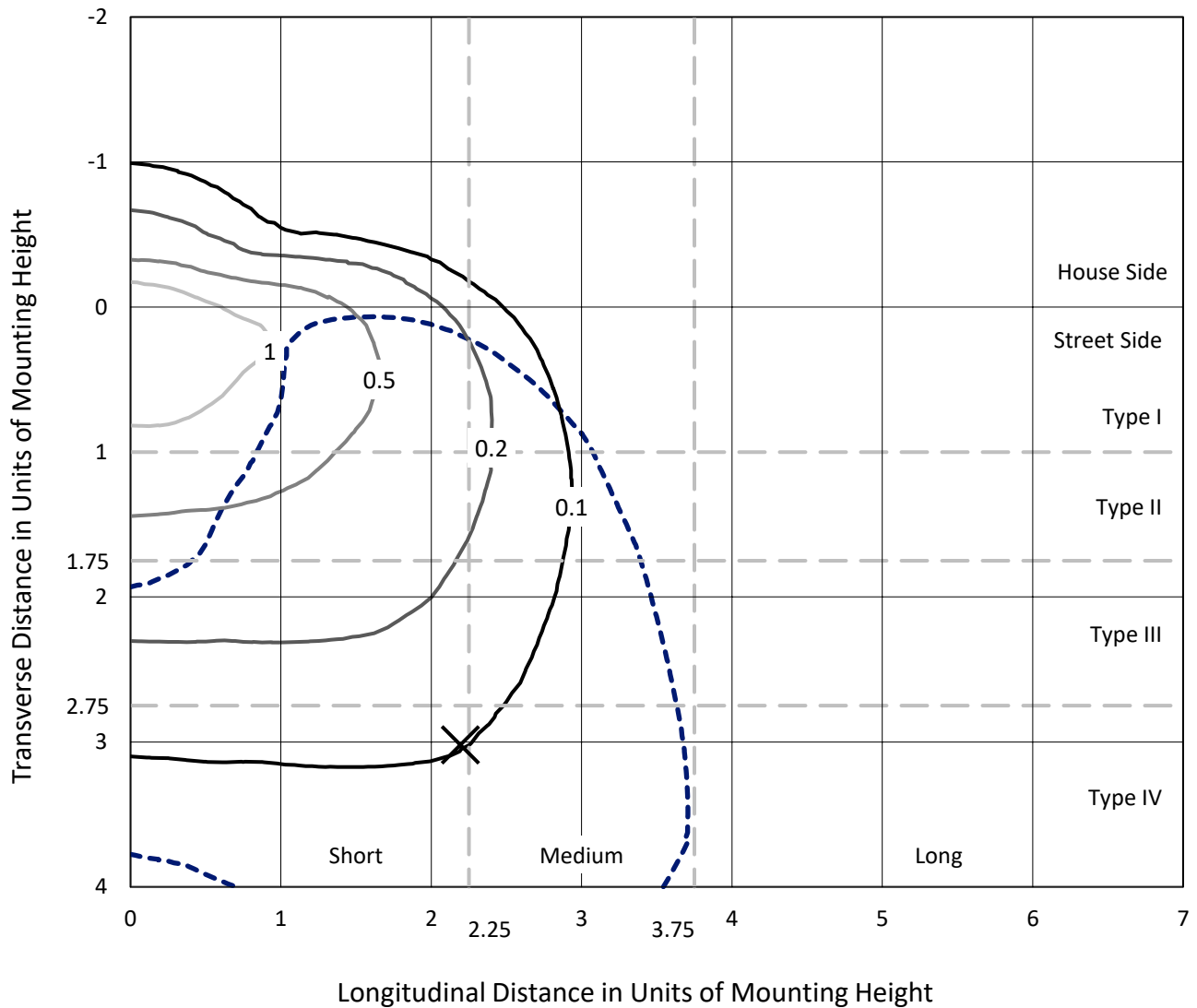
Input Watts (W): 66
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

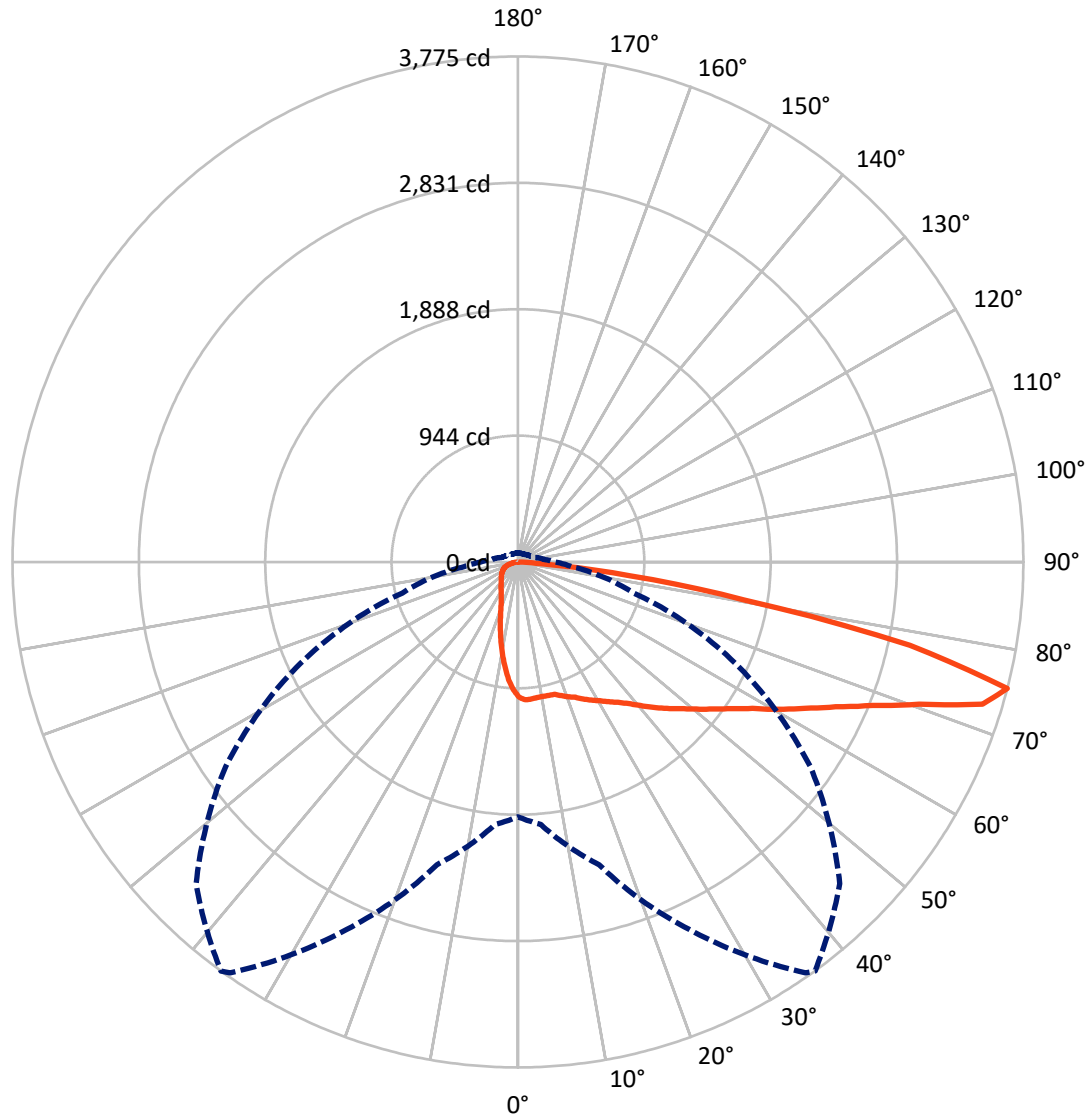
× Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 1.6 fc
 Type IV - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 36-Deg Lateral - - - Horizontal Cone Through 75-Deg Vertical

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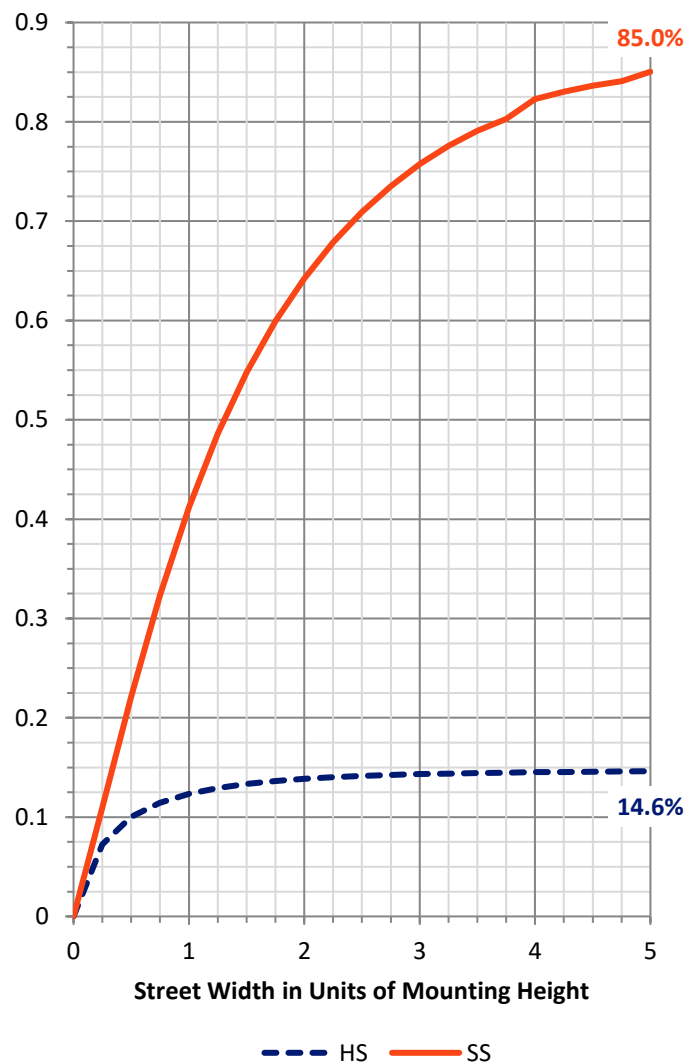
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 817.3 | 0.0 | 817.3 |
| | % Fixture | 14.8 | 0.0 | 14.8 |
| Street Side | Lumens | 4720.7 | 0.0 | 4720.7 |
| | % Fixture | 85.2 | 0.0 | 85.2 |
| Total | Lumens | 5538.0 | 0.0 | 5538.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

Coefficient of Utilization

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 89.1 | 1.6 |
| 10°-20° | 230.4 | 4.2 |
| 20°-30° | 356.4 | 6.4 |
| 30°-40° | 516.1 | 9.3 |
| 40°-50° | 746.5 | 13.5 |
| 50°-60° | 1035.4 | 18.7 |
| 60°-70° | 1307.4 | 23.6 |
| 70°-80° | 1123.0 | 20.3 |
| 80°-90° | 133.8 | 2.4 |
| 90°-100° | 0.0 | 0.0 |
| 100°-110° | 0.0 | 0.0 |
| 110°-120° | 0.0 | 0.0 |
| 120°-130° | 0.0 | 0.0 |
| 130°-140° | 0.0 | 0.0 |
| 140°-150° | 0.0 | 0.0 |
| 150°-160° | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-90° | 5538.0 | 100.0 |
| 0°-180° | 5538.0 | 100.0 |



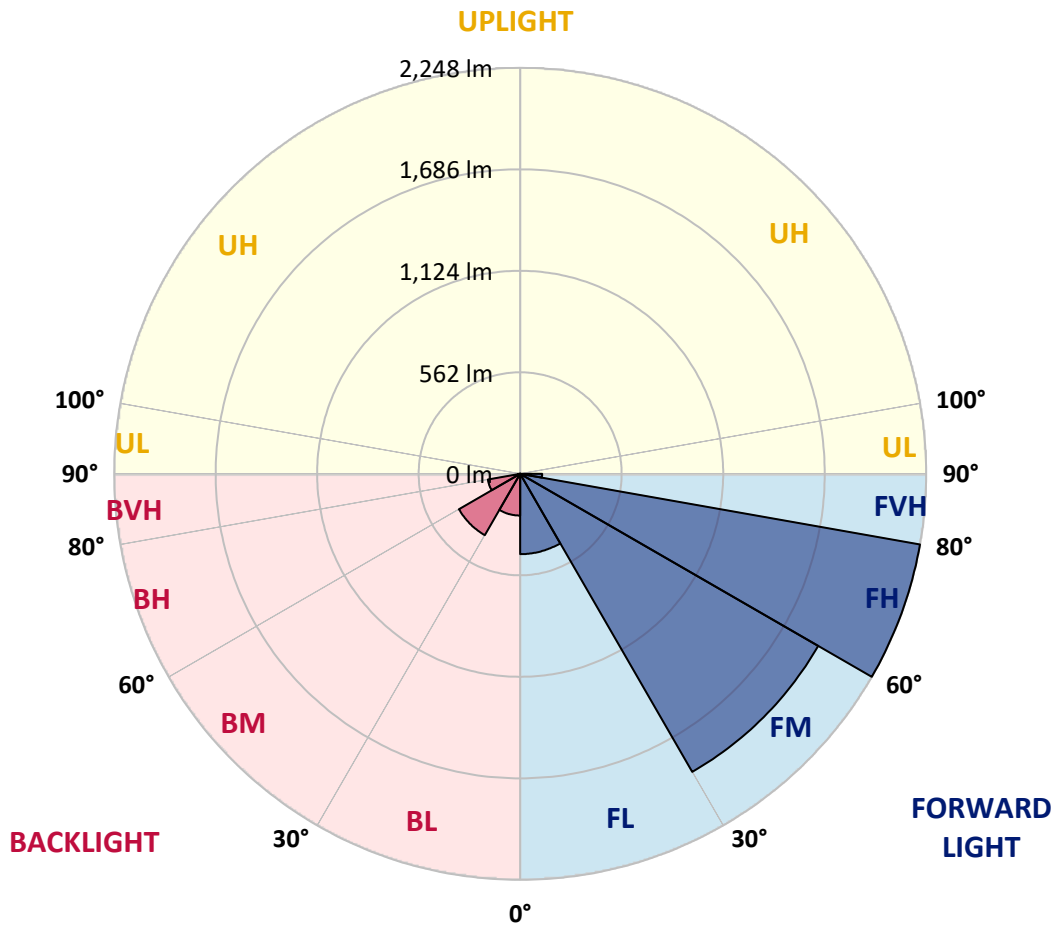
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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 444.7 | 8.0 | | | |
| FM (30°-60°) | 1906.1 | 34.4 | | | |
| FH (60°-80°) | 2248.4 | 40.6 | | | G2/5000 |
| FVH (80°-90°) | 121.4 | 2.2 | | | G2/225 |
| BL (0°-30°) | 231.1 | 4.2 | B1/500 | | |
| BM (30°-60°) | 391.9 | 7.1 | B1/1000 | | |
| BH (60°-80°) | 181.9 | 3.3 | B1/500 | | G1/500 |
| BVH (80°-90°) | 12.4 | 0.2 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G2

Type IV Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 36° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1010.4 | 1010.4 | 1010.4 | 1010.4 | 1010.4 | 1010.4 | 1010.4 | 1010.4 | 1010.4 | 1010.4 | 1010.4 |
| 2.5° | 1039.3 | 1039.3 | 1039.3 | 1037.2 | 1033.1 | 1031.0 | 1026.9 | 1022.8 | 1020.7 | 1012.4 | 1010.4 |
| 5° | 1039.3 | 1041.4 | 1039.3 | 1037.2 | 1033.1 | 1029.0 | 1024.8 | 1016.6 | 1010.4 | 1000.0 | 989.7 |
| 7.5° | 1029.0 | 1031.0 | 1031.0 | 1029.0 | 1024.8 | 1022.8 | 1018.6 | 1008.3 | 1000.0 | 985.6 | 969.1 |
| 10° | 1012.4 | 1016.6 | 1016.6 | 1018.6 | 1020.7 | 1020.7 | 1016.6 | 1008.3 | 995.9 | 979.4 | 952.5 |
| 12.5° | 991.8 | 1002.1 | 1008.3 | 1014.5 | 1022.8 | 1022.8 | 1024.8 | 1012.4 | 1002.1 | 979.4 | 952.5 |
| 15° | 985.6 | 991.8 | 1004.2 | 1022.8 | 1031.0 | 1024.8 | 1033.1 | 1026.9 | 1014.5 | 991.8 | 958.7 |
| 17.5° | 983.5 | 989.7 | 1010.4 | 1033.1 | 1045.5 | 1049.6 | 1049.6 | 1041.4 | 1026.9 | 1004.2 | 962.9 |
| 20° | 991.8 | 1000.0 | 1026.9 | 1055.8 | 1074.4 | 1074.4 | 1072.4 | 1062.0 | 1043.4 | 1016.6 | 971.1 |
| 22.5° | 1018.6 | 1020.7 | 1051.7 | 1086.8 | 1101.3 | 1097.2 | 1101.3 | 1082.7 | 1062.0 | 1035.2 | 981.5 |
| 25° | 1053.8 | 1057.9 | 1082.7 | 1124.0 | 1132.3 | 1134.4 | 1128.2 | 1107.5 | 1084.8 | 1057.9 | 993.9 |
| 27.5° | 1101.3 | 1107.5 | 1126.1 | 1165.3 | 1171.5 | 1167.4 | 1159.1 | 1134.4 | 1111.6 | 1086.8 | 1018.6 |
| 30° | 1157.1 | 1161.2 | 1183.9 | 1200.5 | 1206.7 | 1202.5 | 1196.3 | 1169.5 | 1150.9 | 1128.2 | 1055.8 |
| 32.5° | 1210.8 | 1212.9 | 1237.7 | 1254.2 | 1243.9 | 1243.9 | 1235.6 | 1208.7 | 1194.3 | 1190.1 | 1103.4 |
| 35° | 1266.6 | 1270.7 | 1293.5 | 1301.7 | 1285.2 | 1287.3 | 1285.2 | 1262.5 | 1266.6 | 1274.9 | 1175.7 |
| 37.5° | 1318.2 | 1324.4 | 1351.3 | 1353.4 | 1347.2 | 1341.0 | 1347.2 | 1334.8 | 1343.0 | 1376.1 | 1260.4 |
| 40° | 1363.7 | 1372.0 | 1405.0 | 1411.2 | 1409.2 | 1409.2 | 1413.3 | 1411.2 | 1442.2 | 1495.9 | 1363.7 |
| 42.5° | 1400.9 | 1411.2 | 1450.5 | 1467.0 | 1479.4 | 1485.6 | 1500.1 | 1504.2 | 1549.7 | 1636.4 | 1483.5 |
| 45° | 1438.1 | 1448.4 | 1502.1 | 1529.0 | 1557.9 | 1560.0 | 1588.9 | 1603.4 | 1688.1 | 1766.6 | 1613.7 |
| 47.5° | 1481.5 | 1493.9 | 1543.5 | 1597.2 | 1630.2 | 1636.4 | 1690.2 | 1719.1 | 1822.4 | 1923.6 | 1735.6 |
| 50° | 1541.4 | 1545.5 | 1584.8 | 1675.7 | 1717.0 | 1727.4 | 1787.3 | 1847.2 | 1960.8 | 2062.1 | 1843.1 |
| 52.5° | 1615.8 | 1611.6 | 1630.2 | 1746.0 | 1810.0 | 1824.5 | 1921.6 | 1981.5 | 2117.9 | 2210.9 | 1927.8 |
| 55° | 1677.8 | 1673.6 | 1700.5 | 1826.5 | 1927.8 | 1931.9 | 2047.6 | 2105.5 | 2262.5 | 2320.4 | 2000.1 |
| 57.5° | 1750.1 | 1741.8 | 1768.7 | 1923.6 | 2062.1 | 2064.2 | 2198.5 | 2264.6 | 2392.7 | 2417.5 | 2047.6 |
| 60° | 1810.0 | 1810.0 | 1845.1 | 2018.7 | 2210.9 | 2233.6 | 2355.5 | 2407.1 | 2518.7 | 2487.7 | 2070.3 |
| 62.5° | 1865.8 | 1876.1 | 1925.7 | 2144.7 | 2386.5 | 2405.1 | 2529.0 | 2549.7 | 2648.9 | 2541.4 | 2045.6 |
| 65° | 1931.9 | 1948.4 | 2043.5 | 2295.6 | 2595.2 | 2607.6 | 2710.9 | 2739.8 | 2779.1 | 2539.4 | 1938.1 |
| 67.5° | 2002.2 | 2029.0 | 2155.1 | 2465.0 | 2824.5 | 2857.6 | 2969.2 | 2940.2 | 2865.8 | 2458.8 | 1712.9 |
| 70° | 2097.2 | 2130.3 | 2310.0 | 2690.2 | 3138.6 | 3179.9 | 3326.6 | 3148.9 | 2820.4 | 2171.6 | 1388.5 |
| 72.5° | 2169.5 | 2212.9 | 2458.8 | 2981.6 | 3564.2 | 3628.3 | 3593.2 | 3153.0 | 2529.0 | 1731.5 | 929.8 |
| 75° | 1903.0 | 1969.1 | 2341.0 | 3029.1 | 3746.1 | 3775.0 | 3398.9 | 2665.4 | 1791.4 | 894.7 | 400.8 |
| 77.5° | 1390.6 | 1386.4 | 1710.8 | 2353.4 | 3070.4 | 2993.9 | 2578.6 | 1733.6 | 851.3 | 324.4 | 202.5 |
| 80° | 698.4 | 671.5 | 925.7 | 1254.2 | 1657.1 | 1708.8 | 1524.9 | 900.9 | 336.8 | 173.6 | 121.9 |
| 82.5° | 258.3 | 264.5 | 338.9 | 512.4 | 832.7 | 845.1 | 615.7 | 382.3 | 183.9 | 90.9 | 64.1 |
| 85° | 99.2 | 103.3 | 111.6 | 111.6 | 155.0 | 171.5 | 159.1 | 152.9 | 62.0 | 31.0 | 35.1 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



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CATALOG NUMBER: ISW-SA1F-722-U-SL4

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1010.4 | 1010.4 | 1010.4 | 1010.4 | 1010.4 | 1010.4 | 1010.4 | 1010.4 | 1010.4 | 1010.4 | 1010.4 |
| 2.5° | 1004.2 | 1000.0 | 991.8 | 977.3 | 969.1 | 962.9 | 954.6 | 946.3 | 944.3 | 942.2 | 952.5 |
| 5° | 979.4 | 973.2 | 952.5 | 933.9 | 913.3 | 896.7 | 880.2 | 865.7 | 857.5 | 855.4 | 859.5 |
| 7.5° | 954.6 | 946.3 | 915.3 | 878.1 | 843.0 | 814.1 | 785.2 | 770.7 | 748.0 | 748.0 | 750.0 |
| 10° | 940.1 | 925.7 | 882.3 | 826.5 | 781.0 | 729.4 | 694.2 | 659.1 | 644.7 | 634.3 | 630.2 |
| 12.5° | 931.9 | 909.1 | 851.3 | 789.3 | 719.0 | 650.9 | 603.3 | 559.9 | 537.2 | 520.7 | 520.7 |
| 15° | 933.9 | 909.1 | 830.6 | 750.0 | 659.1 | 576.5 | 516.6 | 469.0 | 440.1 | 423.6 | 419.4 |
| 17.5° | 931.9 | 900.9 | 805.8 | 700.4 | 599.2 | 512.4 | 440.1 | 390.5 | 361.6 | 351.3 | 349.2 |
| 20° | 936.0 | 894.7 | 776.9 | 655.0 | 541.3 | 448.4 | 374.0 | 328.5 | 312.0 | 303.7 | 301.7 |
| 22.5° | 938.1 | 882.3 | 748.0 | 605.4 | 479.4 | 388.4 | 326.5 | 295.5 | 283.1 | 276.9 | 274.8 |
| 25° | 942.2 | 880.2 | 714.9 | 559.9 | 427.7 | 343.0 | 295.5 | 268.6 | 262.4 | 258.3 | 258.3 |
| 27.5° | 958.7 | 880.2 | 686.0 | 502.1 | 374.0 | 305.8 | 268.6 | 252.1 | 247.9 | 245.9 | 245.9 |
| 30° | 979.4 | 884.3 | 659.1 | 454.6 | 332.7 | 276.9 | 250.0 | 237.6 | 235.5 | 233.5 | 233.5 |
| 32.5° | 1014.5 | 898.8 | 628.1 | 409.1 | 297.5 | 256.2 | 235.5 | 225.2 | 221.1 | 221.1 | 221.1 |
| 35° | 1062.0 | 923.6 | 597.1 | 367.8 | 268.6 | 235.5 | 221.1 | 210.8 | 208.7 | 210.8 | 210.8 |
| 37.5° | 1130.2 | 952.5 | 570.3 | 330.6 | 245.9 | 219.0 | 206.6 | 200.4 | 198.4 | 198.4 | 200.4 |
| 40° | 1214.9 | 1004.2 | 543.4 | 301.7 | 229.4 | 204.6 | 196.3 | 190.1 | 188.0 | 190.1 | 190.1 |
| 42.5° | 1307.9 | 1060.0 | 520.7 | 272.7 | 212.8 | 194.2 | 183.9 | 179.8 | 177.7 | 179.8 | 181.8 |
| 45° | 1411.2 | 1117.8 | 502.1 | 252.1 | 200.4 | 183.9 | 175.6 | 173.6 | 171.5 | 171.5 | 173.6 |
| 47.5° | 1498.0 | 1179.8 | 487.6 | 237.6 | 190.1 | 175.6 | 169.4 | 165.3 | 163.2 | 161.2 | 163.2 |
| 50° | 1578.6 | 1227.3 | 483.5 | 229.4 | 183.9 | 167.4 | 161.2 | 157.0 | 155.0 | 152.9 | 155.0 |
| 52.5° | 1638.5 | 1252.1 | 483.5 | 223.2 | 177.7 | 161.2 | 155.0 | 150.8 | 148.8 | 144.6 | 146.7 |
| 55° | 1679.8 | 1264.5 | 477.3 | 219.0 | 171.5 | 155.0 | 146.7 | 144.6 | 142.6 | 138.4 | 138.4 |
| 57.5° | 1704.6 | 1262.5 | 454.6 | 217.0 | 169.4 | 146.7 | 140.5 | 138.4 | 136.4 | 132.2 | 132.2 |
| 60° | 1700.5 | 1223.2 | 413.2 | 208.7 | 165.3 | 140.5 | 132.2 | 132.2 | 132.2 | 128.1 | 128.1 |
| 62.5° | 1640.6 | 1113.7 | 345.1 | 196.3 | 161.2 | 134.3 | 124.0 | 128.1 | 130.2 | 126.0 | 126.0 |
| 65° | 1479.4 | 946.3 | 285.1 | 179.8 | 150.8 | 128.1 | 117.8 | 124.0 | 128.1 | 126.0 | 124.0 |
| 67.5° | 1245.9 | 750.0 | 235.5 | 163.2 | 140.5 | 119.8 | 109.5 | 117.8 | 119.8 | 119.8 | 119.8 |
| 70° | 962.9 | 539.3 | 194.2 | 142.6 | 126.0 | 107.4 | 99.2 | 103.3 | 105.4 | 105.4 | 107.4 |
| 72.5° | 570.3 | 322.3 | 159.1 | 121.9 | 107.4 | 93.0 | 86.8 | 88.8 | 86.8 | 86.8 | 86.8 |
| 75° | 281.0 | 200.4 | 128.1 | 103.3 | 90.9 | 78.5 | 72.3 | 68.2 | 68.2 | 68.2 | 66.1 |
| 77.5° | 171.5 | 148.8 | 105.4 | 82.6 | 72.3 | 59.9 | 55.8 | 51.7 | 51.7 | 51.7 | 51.7 |
| 80° | 121.9 | 115.7 | 80.6 | 62.0 | 49.6 | 43.4 | 41.3 | 39.3 | 39.3 | 37.2 | 37.2 |
| 82.5° | 76.5 | 86.8 | 59.9 | 41.3 | 33.1 | 31.0 | 28.9 | 26.9 | 24.8 | 22.7 | 22.7 |
| 85° | 43.4 | 55.8 | 35.1 | 22.7 | 18.6 | 14.5 | 12.4 | 12.4 | 10.3 | 10.3 | 8.3 |
| 87.5° | 2.1 | 4.1 | 4.1 | 4.1 | 4.1 | 2.1 | 2.1 | 2.1 | 0.0 | 0.0 | 0.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Test Information

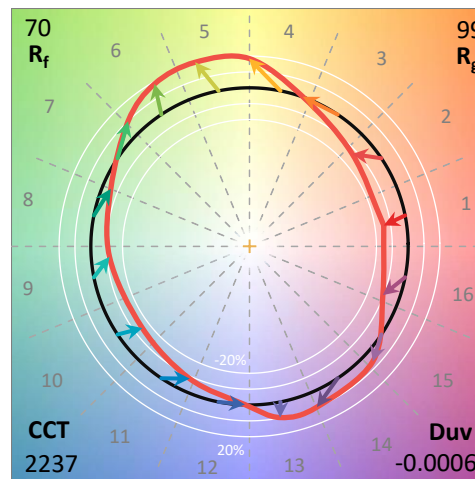
Test Method: LM-79-2008 Report
 Number: SP1-1908-441-10-R4
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 10/28/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: McGRAW-EDISON
 Catalog Number: **SA1C-722-U-5WQ**
 Description: McGRAW EDISON ROADWAY AND AREA LUMINAIRE

THIS IS A REVISION OF SP1-1908-441-4-R3. TO UPDATE THE CATALOG INFORMATION.TESTED IN SITU. ROADWAY AND AREA LUMINAIRE. (1) 70 CRI, 5000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

Spectral Parameters

CCT (K): 2237
 CIE u': 0.2876
 CIE v': 0.5346
 Duv: -0.0006
 CIE x: 0.5005
 CIE y: 0.4134
 CIE z: 0.0860
 Peak Wavelength (nm): 603
 Dominant Wavelength (nm): 587
 Purity: 74.5
 Rf: 69.8
 Rg: 99.2

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 72.0 | | |
| R1: | 68.9 | R9: | -17.4 |
| R2: | 83.0 | R10: | 61.3 |
| R3: | 95.2 | R11: | 59.8 |
| R4: | 66.2 | R12: | 50.5 |
| R5: | 65.9 | R13: | 71.1 |
| R6: | 76.3 | R14: | 96.9 |
| R7: | 76.7 | | |
| R8: | 43.8 | | |



Test Conditions

Stabilization Time: 71M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.7/41%
 Sphere Temperature (°C): 25.6

REPORT NUMBER: SP1-1908-441-10-R4

| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/28/2019 | 12/28/2019 |
| Power Meter | IN0071 | 12/5/2018 | 12/5/2019 |
| AC Power Source | IN0063 | 12/5/2018 | 12/5/2019 |
| DC Power Source | IN0208 | 12/5/2018 | 12/5/2019 |
| Sphere Thermometer | IN0085 | 12/5/2018 | 12/5/2019 |
| Room Thermometer | IN0046 | 12/5/2018 | 12/5/2019 |

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CIE 1931 Chromaticity Diagram



CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 2200K 4-step quadrangle

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Photopic Flux vs. Wavelength



#####

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 1768 | NR | 490 | 5206 | NR | 620 | 130919 | NR | 750 | 8553 | NR | 880 | 2713 | NR |
| 365 | 1569 | NR | 495 | 7286 | NR | 625 | 125335 | NR | 755 | 7696 | NR | 885 | 2316 | NR |
| 370 | 1594 | NR | 500 | 10654 | NR | 630 | 118388 | NR | 760 | 6978 | NR | 890 | 2539 | NR |
| 375 | 1744 | NR | 505 | 15189 | NR | 635 | 111855 | NR | 765 | 6377 | NR | 895 | 1933 | NR |
| 380 | 1659 | NR | 510 | 20541 | NR | 640 | 104062 | NR | 770 | 5600 | NR | 900 | 2216 | NR |
| 385 | 1504 | NR | 515 | 26492 | NR | 645 | 96365 | NR | 775 | 5000 | NR | 905 | 2067 | NR |
| 390 | 1541 | NR | 520 | 32294 | NR | 650 | 88651 | NR | 780 | 4709 | NR | 910 | 1959 | NR |
| 395 | 1355 | NR | 525 | 38123 | NR | 655 | 81152 | NR | 785 | 4305 | NR | 915 | 1874 | NR |
| 400 | 1243 | NR | 530 | 43232 | NR | 660 | 73523 | NR | 790 | 4040 | NR | 920 | 1484 | NR |
| 405 | 1417 | NR | 535 | 48012 | NR | 665 | 66123 | NR | 795 | 3642 | NR | 925 | 1914 | NR |
| 410 | 2147 | NR | 540 | 52623 | NR | 670 | 58677 | NR | 800 | 3594 | NR | 930 | 1948 | NR |
| 415 | 3837 | NR | 545 | 57516 | NR | 675 | 52349 | NR | 805 | 3190 | NR | 935 | 2079 | NR |
| 420 | 7159 | NR | 550 | 62613 | NR | 680 | 46159 | NR | 810 | 3241 | NR | 940 | 2263 | NR |
| 425 | 12599 | NR | 555 | 68554 | NR | 685 | 40525 | NR | 815 | 2732 | NR | 945 | 1688 | NR |
| 430 | 19019 | NR | 560 | 75325 | NR | 690 | 35615 | NR | 820 | 2612 | NR | 950 | 1560 | NR |
| 435 | 24875 | NR | 565 | 82533 | NR | 695 | 31158 | NR | 825 | 2966 | NR | 955 | 2826 | NR |
| 440 | 29103 | NR | 570 | 90909 | NR | 700 | 27409 | NR | 830 | 2574 | NR | 960 | 1477 | NR |
| 445 | 29901 | NR | 575 | 99621 | NR | 705 | 24204 | NR | 835 | 2633 | NR | 965 | 1568 | NR |
| 450 | 24862 | NR | 580 | 108484 | NR | 710 | 21558 | NR | 840 | 2526 | NR | 970 | 2030 | NR |
| 455 | 15942 | NR | 585 | 116679 | NR | 715 | 19222 | NR | 845 | 2631 | NR | 975 | 1986 | NR |
| 460 | 9916 | NR | 590 | 123752 | NR | 720 | 17310 | NR | 850 | 2079 | NR | 980 | 2540 | NR |
| 465 | 7051 | NR | 595 | 129324 | NR | 725 | 15280 | NR | 855 | 2309 | NR | 985 | 1139 | NR |
| 470 | 5227 | NR | 600 | 134082 | NR | 730 | 13282 | NR | 860 | 2528 | NR | 990 | 2018 | NR |
| 475 | 4257 | NR | 605 | 135698 | NR | 735 | 11753 | NR | 865 | 2121 | NR | 995 | 3445 | NR |
| 480 | 4052 | NR | 610 | 135144 | NR | 740 | 10654 | NR | 870 | 2751 | NR | 1000 | 3704 | NR |
| 485 | 4298 | NR | 615 | 134180 | NR | 745 | 9451 | NR | 875 | 2317 | NR | | | |

REPORT NUMBER: SP1-1908-441-10-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 4696.9

S/P: 0.85

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 1768 | NR | 490 | 5206 | NR | 620 | 130919 | NR | 750 | 8553 | NR | 880 | 2713 | NR |
| 365 | 1569 | NR | 495 | 7286 | NR | 625 | 125335 | NR | 755 | 7696 | NR | 885 | 2316 | NR |
| 370 | 1594 | NR | 500 | 10654 | NR | 630 | 118388 | NR | 760 | 6978 | NR | 890 | 2539 | NR |
| 375 | 1744 | NR | 505 | 15189 | NR | 635 | 111855 | NR | 765 | 6377 | NR | 895 | 1933 | NR |
| 380 | 1659 | NR | 510 | 20541 | NR | 640 | 104062 | NR | 770 | 5600 | NR | 900 | 2216 | NR |
| 385 | 1504 | NR | 515 | 26492 | NR | 645 | 96365 | NR | 775 | 5000 | NR | 905 | 2067 | NR |
| 390 | 1541 | NR | 520 | 32294 | NR | 650 | 88651 | NR | 780 | 4709 | NR | 910 | 1959 | NR |
| 395 | 1355 | NR | 525 | 38123 | NR | 655 | 81152 | NR | 785 | 4305 | NR | 915 | 1874 | NR |
| 400 | 1243 | NR | 530 | 43232 | NR | 660 | 73523 | NR | 790 | 4040 | NR | 920 | 1484 | NR |
| 405 | 1417 | NR | 535 | 48012 | NR | 665 | 66123 | NR | 795 | 3642 | NR | 925 | 1914 | NR |
| 410 | 2147 | NR | 540 | 52623 | NR | 670 | 58677 | NR | 800 | 3594 | NR | 930 | 1948 | NR |
| 415 | 3837 | NR | 545 | 57516 | NR | 675 | 52349 | NR | 805 | 3190 | NR | 935 | 2079 | NR |
| 420 | 7159 | NR | 550 | 62613 | NR | 680 | 46159 | NR | 810 | 3241 | NR | 940 | 2263 | NR |
| 425 | 12599 | NR | 555 | 68554 | NR | 685 | 40525 | NR | 815 | 2732 | NR | 945 | 1688 | NR |
| 430 | 19019 | NR | 560 | 75325 | NR | 690 | 35615 | NR | 820 | 2612 | NR | 950 | 1560 | NR |
| 435 | 24875 | NR | 565 | 82533 | NR | 695 | 31158 | NR | 825 | 2966 | NR | 955 | 2826 | NR |
| 440 | 29103 | NR | 570 | 90909 | NR | 700 | 27409 | NR | 830 | 2574 | NR | 960 | 1477 | NR |
| 445 | 29901 | NR | 575 | 99621 | NR | 705 | 24204 | NR | 835 | 2633 | NR | 965 | 1568 | NR |
| 450 | 24862 | NR | 580 | 108484 | NR | 710 | 21558 | NR | 840 | 2526 | NR | 970 | 2030 | NR |
| 455 | 15942 | NR | 585 | 116679 | NR | 715 | 19222 | NR | 845 | 2631 | NR | 975 | 1986 | NR |
| 460 | 9916 | NR | 590 | 123752 | NR | 720 | 17310 | NR | 850 | 2079 | NR | 980 | 2540 | NR |
| 465 | 7051 | NR | 595 | 129324 | NR | 725 | 15280 | NR | 855 | 2309 | NR | 985 | 1139 | NR |
| 470 | 5227 | NR | 600 | 134082 | NR | 730 | 13282 | NR | 860 | 2528 | NR | 990 | 2018 | NR |
| 475 | 4257 | NR | 605 | 135698 | NR | 735 | 11753 | NR | 865 | 2121 | NR | 995 | 3445 | NR |
| 480 | 4052 | NR | 610 | 135144 | NR | 740 | 10654 | NR | 870 | 2751 | NR | 1000 | 3704 | NR |
| 485 | 4298 | NR | 615 | 134180 | NR | 745 | 9451 | NR | 875 | 2317 | NR | | | |

REPORT NUMBER: SP1-1908-441-10-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 1470.8 M/P: 0.27

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 1768 | NR | 490 | 5206 | NR | 620 | 130919 | NR | 750 | 8553 | NR | 880 | 2713 | NR |
| 365 | 1569 | NR | 495 | 7286 | NR | 625 | 125335 | NR | 755 | 7696 | NR | 885 | 2316 | NR |
| 370 | 1594 | NR | 500 | 10654 | NR | 630 | 118388 | NR | 760 | 6978 | NR | 890 | 2539 | NR |
| 375 | 1744 | NR | 505 | 15189 | NR | 635 | 111855 | NR | 765 | 6377 | NR | 895 | 1933 | NR |
| 380 | 1659 | NR | 510 | 20541 | NR | 640 | 104062 | NR | 770 | 5600 | NR | 900 | 2216 | NR |
| 385 | 1504 | NR | 515 | 26492 | NR | 645 | 96365 | NR | 775 | 5000 | NR | 905 | 2067 | NR |
| 390 | 1541 | NR | 520 | 32294 | NR | 650 | 88651 | NR | 780 | 4709 | NR | 910 | 1959 | NR |
| 395 | 1355 | NR | 525 | 38123 | NR | 655 | 81152 | NR | 785 | 4305 | NR | 915 | 1874 | NR |
| 400 | 1243 | NR | 530 | 43232 | NR | 660 | 73523 | NR | 790 | 4040 | NR | 920 | 1484 | NR |
| 405 | 1417 | NR | 535 | 48012 | NR | 665 | 66123 | NR | 795 | 3642 | NR | 925 | 1914 | NR |
| 410 | 2147 | NR | 540 | 52623 | NR | 670 | 58677 | NR | 800 | 3594 | NR | 930 | 1948 | NR |
| 415 | 3837 | NR | 545 | 57516 | NR | 675 | 52349 | NR | 805 | 3190 | NR | 935 | 2079 | NR |
| 420 | 7159 | NR | 550 | 62613 | NR | 680 | 46159 | NR | 810 | 3241 | NR | 940 | 2263 | NR |
| 425 | 12599 | NR | 555 | 68554 | NR | 685 | 40525 | NR | 815 | 2732 | NR | 945 | 1688 | NR |
| 430 | 19019 | NR | 560 | 75325 | NR | 690 | 35615 | NR | 820 | 2612 | NR | 950 | 1560 | NR |
| 435 | 24875 | NR | 565 | 82533 | NR | 695 | 31158 | NR | 825 | 2966 | NR | 955 | 2826 | NR |
| 440 | 29103 | NR | 570 | 90909 | NR | 700 | 27409 | NR | 830 | 2574 | NR | 960 | 1477 | NR |
| 445 | 29901 | NR | 575 | 99621 | NR | 705 | 24204 | NR | 835 | 2633 | NR | 965 | 1568 | NR |
| 450 | 24862 | NR | 580 | 108484 | NR | 710 | 21558 | NR | 840 | 2526 | NR | 970 | 2030 | NR |
| 455 | 15942 | NR | 585 | 116679 | NR | 715 | 19222 | NR | 845 | 2631 | NR | 975 | 1986 | NR |
| 460 | 9916 | NR | 590 | 123752 | NR | 720 | 17310 | NR | 850 | 2079 | NR | 980 | 2540 | NR |
| 465 | 7051 | NR | 595 | 129324 | NR | 725 | 15280 | NR | 855 | 2309 | NR | 985 | 1139 | NR |
| 470 | 5227 | NR | 600 | 134082 | NR | 730 | 13282 | NR | 860 | 2528 | NR | 990 | 2018 | NR |
| 475 | 4257 | NR | 605 | 135698 | NR | 735 | 11753 | NR | 865 | 2121 | NR | 995 | 3445 | NR |
| 480 | 4052 | NR | 610 | 135144 | NR | 740 | 10654 | NR | 870 | 2751 | NR | 1000 | 3704 | NR |
| 485 | 4298 | NR | 615 | 134180 | NR | 745 | 9451 | NR | 875 | 2317 | NR | | | |

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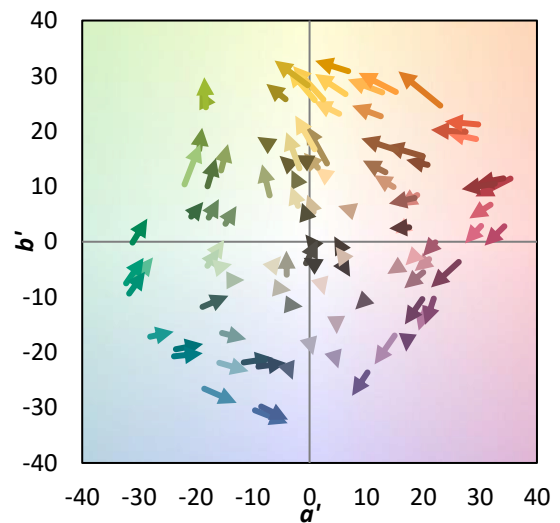
TM-30-18

Summary

$R_f = 69.8$
 $R_g = 99.2$
 $CIE R_a = 72.0$
 $R_g = -17.4$



Color Vector Graphics



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Individual Sample Fidelity Index ($R_{f,i}$)

| | | | |
|------------|------------|------------|------------|
| CES01 = 87 | CES26 = 56 | CES51 = 74 | CES76 = 56 |
| CES02 = 65 | CES27 = 76 | CES52 = 76 | CES77 = 81 |
| CES03 = 32 | CES28 = 83 | CES53 = 65 | CES78 = 63 |
| CES04 = 72 | CES29 = 46 | CES54 = 78 | CES79 = 84 |
| CES05 = 52 | CES30 = 48 | CES55 = 75 | CES80 = 84 |
| CES06 = 52 | CES31 = 51 | CES56 = 65 | CES81 = 63 |
| CES07 = 44 | CES32 = 51 | CES57 = 62 | CES82 = 92 |
| CES08 = 42 | CES33 = 53 | CES58 = 66 | CES83 = 83 |
| CES09 = 29 | CES34 = 70 | CES59 = 84 | CES84 = 92 |
| CES10 = 78 | CES35 = 85 | CES60 = 90 | CES85 = 81 |
| CES11 = 61 | CES36 = 78 | CES61 = 84 | CES86 = 56 |
| CES12 = 68 | CES37 = 80 | CES62 = 70 | CES87 = 78 |
| CES13 = 45 | CES38 = 53 | CES63 = 68 | CES88 = 72 |
| CES14 = 75 | CES39 = 90 | CES64 = 69 | CES89 = 62 |
| CES15 = 72 | CES40 = 84 | CES65 = 67 | CES90 = 67 |
| CES16 = 49 | CES41 = 75 | CES66 = 64 | CES91 = 90 |
| CES17 = 51 | CES42 = 79 | CES67 = 63 | CES92 = 67 |
| CES18 = 57 | CES43 = 64 | CES68 = 69 | CES93 = 79 |
| CES19 = 74 | CES44 = 98 | CES69 = 80 | CES94 = 52 |
| CES20 = 68 | CES45 = 73 | CES70 = 63 | CES95 = 76 |
| CES21 = 89 | CES46 = 67 | CES71 = 63 | CES96 = 78 |
| CES22 = 81 | CES47 = 60 | CES72 = 87 | CES97 = 77 |
| CES23 = 92 | CES48 = 48 | CES73 = 56 | CES98 = 71 |
| CES24 = 92 | CES49 = 64 | CES74 = 87 | CES99 = 65 |
| CES25 = 74 | CES50 = 74 | CES75 = 66 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)